

Release notes for ENDF/B Development n-044_Ru_105
evaluation

ENDF
B-VII.dev

April 26, 2017

- checkr Warnings:

1. A previous error halted parsing of the current section
MAT=4452, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=4452, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER 91 TO 129
```

- checkr Errors:

1. A variable is outside the allowed ENDF range
MAT=4452, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=4452, MF= 1, MT=451
MOD = 1 OUT OF RANGE 0 - 0 RECORD NUMBER 91
```

2. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 2, MT=151 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=4452, MF= 2, MT=151
SECTION 2/151 NOT IN DIRECTORY RECORD NUMBER 131
```

3. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 1 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 1
SECTION 3/ 1 NOT IN DIRECTORY RECORD NUMBER 137
```

4. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 2 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 2
SECTION 3/ 2 NOT IN DIRECTORY RECORD NUMBER 182
```

5. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 4 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 4
SECTION 3/ 4 NOT IN DIRECTORY RECORD NUMBER 227
```

6. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 16 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 16
SECTION 3/ 16 NOT IN DIRECTORY RECORD NUMBER 265
```

7. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 17 (0): Directory (b)

- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 17 | RECORD NUMBER | 289 |
| SECTION 3/ 17 NOT IN DIRECTORY | | |
8. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 22 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 22 | RECORD NUMBER | 300 |
| SECTION 3/ 22 NOT IN DIRECTORY | | |
9. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 28 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 28 | RECORD NUMBER | 317 |
| SECTION 3/ 28 NOT IN DIRECTORY | | |
10. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 51 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 51 | RECORD NUMBER | 331 |
| SECTION 3/ 51 NOT IN DIRECTORY | | |
11. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 52 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 52 | RECORD NUMBER | 369 |
| SECTION 3/ 52 NOT IN DIRECTORY | | |
12. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 53 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 53 | RECORD NUMBER | 405 |
| SECTION 3/ 53 NOT IN DIRECTORY | | |
13. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 54 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 54 | RECORD NUMBER | 441 |
| SECTION 3/ 54 NOT IN DIRECTORY | | |
14. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 55 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 55 | RECORD NUMBER | 476 |
| SECTION 3/ 55 NOT IN DIRECTORY | | |
15. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 56 (0): Directory (b)

- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 56 | |
| SECTION 3/ 56 NOT IN DIRECTORY | RECORD NUMBER 510 |
16. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT= 91 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT= 91 | |
| SECTION 3/ 91 NOT IN DIRECTORY | RECORD NUMBER 544 |
17. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT=102 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT=102 | |
| SECTION 3/102 NOT IN DIRECTORY | RECORD NUMBER 578 |
18. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT=103 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT=103 | |
| SECTION 3/103 NOT IN DIRECTORY | RECORD NUMBER 618 |
19. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT=104 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT=104 | |
| SECTION 3/104 NOT IN DIRECTORY | RECORD NUMBER 643 |
20. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT=105 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT=105 | |
| SECTION 3/105 NOT IN DIRECTORY | RECORD NUMBER 660 |
21. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 3, MT=107 (0): Directory (b)
- | | |
|---|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 3, MT=107 | |
| SECTION 3/107 NOT IN DIRECTORY | RECORD NUMBER 676 |
22. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 2 (0): Directory (b)
- | | |
|--|-------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 2 | |
| SECTION 4/ 2 NOT IN DIRECTORY | RECORD NUMBER 705 |
23. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 16 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 16 | |
| | SECTION 4/ 16 NOT IN DIRECTORY | RECORD NUMBER 1147 |
24. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 17 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 17 | |
| | SECTION 4/ 17 NOT IN DIRECTORY | RECORD NUMBER 1210 |
25. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 22 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 22 | |
| | SECTION 4/ 22 NOT IN DIRECTORY | RECORD NUMBER 1237 |
26. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 28 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 28 | |
| | SECTION 4/ 28 NOT IN DIRECTORY | RECORD NUMBER 1280 |
27. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 51 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 51 | |
| | SECTION 4/ 51 NOT IN DIRECTORY | RECORD NUMBER 1317 |
28. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 52 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 52 | |
| | SECTION 4/ 52 NOT IN DIRECTORY | RECORD NUMBER 1550 |
29. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 53 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 53 | |
| | SECTION 4/ 53 NOT IN DIRECTORY | RECORD NUMBER 1776 |
30. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 54 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 54 | |
| | SECTION 4/ 54 NOT IN DIRECTORY | RECORD NUMBER 2003 |
31. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 55 (0): Directory (b)

- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 55 | |
| SECTION 4/ 55 NOT IN DIRECTORY | RECORD NUMBER 2098 |
32. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 56 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 56 | |
| SECTION 4/ 56 NOT IN DIRECTORY | RECORD NUMBER 2296 |
33. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 4, MT= 91 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 4, MT= 91 | |
| SECTION 4/ 91 NOT IN DIRECTORY | RECORD NUMBER 2518 |
34. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 5, MT= 16 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 5, MT= 16 | |
| SECTION 5/ 16 NOT IN DIRECTORY | RECORD NUMBER 2612 |
35. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 5, MT= 17 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 5, MT= 17 | |
| SECTION 5/ 17 NOT IN DIRECTORY | RECORD NUMBER 2902 |
36. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 5, MT= 22 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 5, MT= 22 | |
| SECTION 5/ 22 NOT IN DIRECTORY | RECORD NUMBER 3012 |
37. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 5, MT= 28 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 5, MT= 28 | |
| SECTION 5/ 28 NOT IN DIRECTORY | RECORD NUMBER 3195 |
38. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4452, MF= 5, MT= 91 (0): Directory (b)
- | | |
|---|--------------------|
| ERROR(S) FOUND IN MAT=4452, MF= 5, MT= 91 | |
| SECTION 5/ 91 NOT IN DIRECTORY | RECORD NUMBER 3348 |

• fudge-4.0 Warnings:

1. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 23.95%

• fudge-4.0 Errors:

1. Calculated and tabulated Q values disagree.
reaction label 8: n[multiplicity:'2'] + Ru104 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -2663822.050933838 eV vs -5.9101e6 eV!

2. Calculated and tabulated Q values disagree.
reaction label 9: n[multiplicity:'3'] + Ru103 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -11565236.67440796 eV vs -1.4814e7 eV!

3. Calculated and tabulated Q values disagree.
reaction label 10: n + H1 + Tc104 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -7484182.025772095 eV vs -1.0731e7 eV!

4. Calculated and tabulated Q values disagree.
reaction label 11: Ru106 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 11712018.24124146 eV vs 8.4652e6 eV!

5. Calculated and tabulated Q values disagree.
reaction label 12: n + He4 + Mo101 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -1595061.560119629 eV vs -4.8439e6 eV!

6. Calculated and tabulated Q values disagree.
reaction label 13: H1 + Tc105-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 388622.8443450928 eV vs -2.7992e6 eV!

7. Calculated and tabulated Q values disagree.
reaction label 14: H2 + Tc104-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -5259615.924835205 eV vs -8.5061e6 eV!

8. Calculated and tabulated Q values disagree.
reaction label 15: H3 + Tc103-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -4962838.959320068 eV vs -8.2095e6 eV!

9. Calculated and tabulated Q values disagree.
reaction label 16: He4 + Mo102-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 6522496.165328979 eV vs 3.2738e6 eV!

• njoy2012 Warnings:

1. Evaluation has no resonance parameters given
unresr...calculation of unresolved resonance cross sections (0): No RR

---message from unresr---mat 4452 has no resonance parameters
copy as is to nout

2. Evaluation has no resonance parameters given
purrr...probabalistic unresolved calculation (0): No RR

---message from purrr---mat 4452 has no resonance parameters
copy as is to nout

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

grouprr...compute self-shielded group-averaged cross-sections (0): GROUPE/conver (0)

---message from conver---cannot do complete particle production for mt= 16
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

grouprr...compute self-shielded group-averaged cross-sections (1): GROUPE/conver (0)

---message from conver---cannot do complete particle production for mt= 17
only mf4/mf5 provided

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

grouprr...compute self-shielded group-averaged cross-sections (2): GROUPE/conver (0)

---message from conver---cannot do complete particle production for mt= 22
only mf4/mf5 provided

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

grouprr...compute self-shielded group-averaged cross-sections (3): GROUPE/conver (0)

---message from conver---cannot do complete particle production for mt= 28
only mf4/mf5 provided

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

grouprr...compute self-shielded group-averaged cross-sections (4): GROUPE/conver (0)

---message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided